

## REMARKS

Claims 4-8, 12, 14-19, 24, 25, 30 and 31 have been canceled without prejudice or disclaimer. Claims 1-3, 9-11, 13, 20-23, 26-29 are pending. Claims 1, 2, 3, 9, 10, 11, 22, 23 and 29 are amended. Claims 1 and 9 has been amended to specify that the analogues have at least 80% homology to the recited polypeptides. Support for this amendment is found in the specification, e.g., at page 30, line 2. It is respectfully submitted that the present amendment presents no new issues or new matter and places this case in condition for allowance. Reconsideration of the application in view of the above amendments and the following remarks is requested.

### **I. The Rejection of Claims 1 and 20-29 under 35 U.S.C. 112**

Claims 1 and 20-29 are rejected under 35 U.S.C. 112 as allegedly non-enabled. The Examiner states that these claims require a deposit in accordance with 37 C.F.R. 1.801-1.809. The Examiner notes that Applicants have deposited the organisms, but that there is no indication in the specification as to public availability.

In response, Applicants submit herewith a statement pursuant to 37 C.F.R. 1.808 by Applicant's attorney that the specific strain has been deposited under the Budapest Treaty and that all restrictions on the availability to the public of the deposited material will be irrevocably removed upon the granting of the U.S. patent. Reconsideration and withdrawal of this rejection are respectfully requested.

### **II. The Rejection of Claims 1, 3, 9-11, 13-14 and 20-29 under 35 U.S.C. 112**

Claims 1, 3, 9-11, 13,14 and 20-29 are rejected under 35 U.S.C. 112 as allegedly non-enabled. In sum, the Examiner alleges that the claims are not enabled for a mannanase enzyme that is 65% identical to SEQ ID NO:2.

In order to expedite prosecution, part (d) of claim 1 has been amended to recite that the mannanase analogues are at least 80% identical to the mannanase enzyme specified in parts (a) and (b). Mannanase enzymes which are at least 80% identical to the specified sequences are plainly commensurate in scope with the enablement provided by the disclosure. For example, such homologous enzymes would include the polypeptides having the amino acid changes, as described in the specification on pages 35-38. Thus, the ability to prepare mannanase enzymes having at least 80% identity is within the skill of the artisan, based on both the teachings of the specification and techniques which are well known in the art for producing

such highly homologous enzymes.

For the foregoing reasons, Applicants submit that the claims overcome this rejection under 35 U.S.C. 112. Applicants respectfully request reconsideration and withdrawal of the rejection.

**III. The Rejection of Claims 1, 3, 9-11, 13,14 and 20-29 under 35 U.S.C. 112**

Claims 1, 3, 9-11, 13,14 and 20-29 are rejected under 35 U.S.C. 112 as allegedly lacking an adequate written description. The Examiner alleges that the specification discloses only a single species of the claimed genus, which is allegedly insufficient to put one of skill in the art in possession of the attributes and features of all species within the claimed genus.

As amended, part (d) of claim 1 now recites that the mannanase analogues are at least 80% identical to the mannanase enzyme specified in parts (a) and (b). Contrary to the rejection, Applicants have not merely provided a disclosure of only a single species of the claimed genus. Indeed, the specification teaches many species of the claimed genus. See, e.g., the specification at page 35-38.

Applicants respectfully submit that the written description requirement of 35 U.S.C. 112 is fulfilled for the amended claims. Applicants respectfully request reconsideration and withdrawal of the rejection.

**IV. The Rejection of Claim 1 under 35 U.S.C. 112**

Claim 1 stands rejected under 35 U.S.C. 112 as indefinite. The Examiner concludes that the phrase "encodable by" is indefinite. Applicants have amended claim 1 in the manner suggested by the Examiner to overcome this rejection. Applicants respectfully request reconsideration and withdrawal of the rejection.

**V. The Rejection of Claim 2 under 35 U.S.C. 112**

Claim 2 stands rejected under 35 U.S.C. 112 as indefinite. The Examiner concludes that the phrase "derivable from" is indefinite. Applicants have amended claim 2 in the manner suggested by the Examiner to overcome this rejection. Applicants respectfully request reconsideration and withdrawal of the rejection.

**VI. The Rejection of Claim 3 under 35 U.S.C. 112**

Claim 3 stands rejected under 35 U.S.C. 112 as indefinite. The Examiner concludes that the phrase "and/or" is indefinite. Applicants have amended claim 3 to specify "or", as suggested by

the Examiner to overcome this rejection. Applicants respectfully request reconsideration and withdrawal of the rejection.

**VII. The Rejection of Claims 24 and 25 under 35 U.S.C. 112**

Claims 24 and 25 stand rejected under 35 U.S.C. 112 as allegedly indefinite. It is respectfully submitted that the cancellation of claims 24 and 25 renders this rejection moot.

**VIII. The Rejection of Claim 29 under 35 U.S.C. 112**

Claim 29 stands rejected as lacking proper antecedent basis for the recitation "fabric softening composition." It is respectfully submitted that this rejection is rendered moot by the amendments to claim 29. Applicants respectfully request reconsideration and withdrawal of the rejection.

**IX. The Rejection of Claims 1-2, 9-11, and 14 under 35 U.S.C. 102**

Claims 1-2, 9-11 and 14 are rejected under 35 U.S.C. 102 as allegedly anticipated by Yoshida et al. The Examiner contends that Yoshida discloses a mannanase which has more than 65% identity with amino acids 31-300 of SEQ ID NO:2.

In order to expedite prosecution, claim 1 has been amended to recite that the claimed analogues have at least 80% identity with SEQ ID NO:2. It is respectfully submitted that the rejection over Yoshida is rendered moot by the present amendment as Yoshida does not teach a mannanase having at least 80% identity with SEQ ID NO:2. Applicants respectfully request reconsideration and withdrawal of the rejection.

**X. The Rejection of Claims 1-2 and 14 under 35 U.S.C. 102**

Claims 1-2 and 14 are rejected under 35 U.S.C. 102 as allegedly anticipated by Akino et al. The Examiner contends that Akino discloses a mannanase which has more than 65% identity with a fragment of amino acids 31-300 of SEQ ID NO:2.

In order to expedite prosecution, the recitation in claim 1 of a percent identity to a fragment of the identified sequences has been removed. Applicants respectfully request reconsideration and withdrawal of the rejection.

**XI. The Rejection of Claims 1-3, 9-11, 13, 14, 20-29 under 35 U.S.C. 103**

Claims 1-3, 9-11, 13, 14, 20-29 have been rejected as obvious over Mendoza et al. in view of Cuperus et al. Applicants respectfully traverse this rejection.

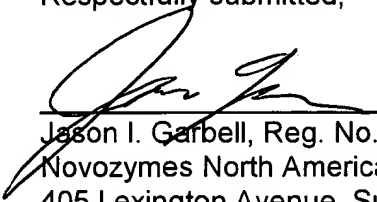
The cited combination of Mendoza et al. in view of Cuperus et al. cannot render the claimed invention obvious as neither of these references teaches or suggests the polypeptides of claim 1. Reconsideration and withdrawal of the 103 rejection are respectfully requested.

**XII. Conclusion**

In view of the above, it is respectfully submitted that all claims are in condition for allowance. Early action to that end is respectfully requested. The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,

Date: June 27, 2001

  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Kaupinen et al.

Serial No.: 09/339,159

Group Art Unit: 1652

Filed: June 24, 1999

Examiner: M. Rao

For: Novel Mannanases

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Sir:

Below is a marked-up version of the amendments made in the accompanying amendment.

IN THE CLAIMS:

1. (Amended.) An isolated mannanase, which is
  - (a) a polypeptide [encodable] encoded by the mannanase enzyme encoding part of the DNA sequence cloned into the plasmid present in Escherichia coli DSM 12197, or
  - (b) a polypeptide comprising an amino acid sequence as shown in positions 31-330 of SEQ ID NO:2, or
  - (c) a polypeptide [encodable] encoded by the DNA sequence as shown in positions 91-990 or positions 91-1470 of SEQ ID NO:1, or
  - (d) an analogue of the polypeptide defined in (a) or (b) which is at least [65%] 80% homologous with said polypeptide[, or a fragment of (a), (b) or (c)].
2. (Amended.) The mannanase according to claim 1, which is [derivable] obtained from a strain of *Bacillus sp.*
3. (Amended.) The mannanase according to claim 2, which has
  - i) a relative mannanase activity of at least 60% in the pH range 7.5-10, measured at 40°C;
  - ii) a molecular weight of  $34 \pm 10$  kDa, as determined by SDS-PAGE; [and/]or
  - iii) the N-terminal sequence ANSGFYVSGTTLYDANG.

9. (Amended.) An isolated polypeptide having mannanase activity selected from the group consisting of:
- (a) polypeptide molecules comprising an amino acid sequence as shown in SEQ ID NO: 2 from residue 31 to residue 330; and
  - (b) polypeptide molecules that are at least [65] 80% identical to the amino acids of SEQ ID NO: 2 from amino acid residue 31 to amino acid residue 330.
10. (Amended.) The polypeptide according to claim [9] 1, which is produced by *Bacillus sp.* 1633.
11. (Amended.) An enzyme preparation comprising a purified polypeptide according to claim [9] 1.
13. (Unchanged.) The preparation according to claim 11 which further comprises one or more enzymes selected from the group consisting of proteases, cellulases (endoglucanases),  $\beta$ -glucanases, hemicellulases, lipases, peroxidases, laccases,  $\alpha$ -amylases, glucoamylases, cutinases, pectinases, reductases, oxidases, phenoloxidases, ligninases, pullulanases, pectate lyases, xyloglucanases, xylanases, pectin acetyl esterases, polygalacturonases, rhamnogalacturonases, pectin lyases, other mannanases, pectin methylesterases, cellobiohydrolases, transglutaminases; or mixtures thereof.
20. (Unchanged.) A cleaning composition comprising the enzyme preparation according to claim 11 or the enzyme according to claim 1 or 2.
21. (Unchanged.) The cleaning composition according to claim 20 which further comprises an enzyme selected from cellulases, proteases, lipases, amylases, pectin degrading enzymes and xyloglucanases; and conventional detergent ingredient.
22. (Amended.) The cleaning composition according to claim 20 wherein said enzyme or enzyme preparation is present at a level of from 0.0001% to 2%[, preferably from 0.0005% to 0.5%, more preferably from 0.001% to 0.1%] pure enzyme by weight of total composition.
23. (Amended.) The cleaning composition according to claim 21 wherein the enzyme is

present at a level of from 0.0001% to 2%[, preferably from 0.0005% to 0.5%, more preferably from 0.001% to 0.1%] pure enzyme by weight of total composition.

26. (Unchanged.) The cleaning composition according to claim 21 which comprises a surfactant selected from anionic, nonionic, cationic surfactant, and/or mixtures thereof.

27. (Unchanged.) The cleaning composition according to claim 21 which comprises a bleaching agent.

28. (Unchanged.) The cleaning composition according to claim 21 which comprises a builder.

29. (Amended.) A fabric softening composition ~~comprising the enzyme preparation according to claim 11, an enzyme selected from cellulases, proteases, lipases, amylases, pectin degrading enzymes and xyloglucanases, and~~ [according to claim 21 which comprises] a cationic surfactant comprising two long chain lengths.